

CLAIMS:

1. A device for detecting the temperature of an oscillator crystal that has a crystal vibrator in an oscillator-crystal housing, in particular in a mobile radio apparatus, characterized in that a temperature sensor (7) is arranged on a carrier (1, 11) in such a way that it is subjected to the same ambient temperature as the oscillator crystal (2), or the crystal vibrator (4), wherein the temperature sensor (7) is provided on the same side of the carrier (1, 11) as the oscillator crystal (2), or the crystal vibrator (4) respectively, and is not separated from the oscillator crystal (2), or from the crystal vibrator (4), by a wall, and that the temperature sensor (7) is electrically connected parallel to the terminals (A, B; 10) of the crystal vibrator (4) or to a series connection of the crystal vibrator (4) and at least one coupling capacitor (Ck).
2. A device as claimed in claim 1, characterized in that the temperature sensor (7) is arranged in the oscillator crystal housing (2').
3. A device as claimed in claim 1, characterized in that the temperature sensor (7) is arranged on a printed circuit board (1) adjacent to the oscillator crystal housing (2').
4. A device as claimed in any one of the above claims, characterized in that the carrier (1) exhibits openings (51) between the heat-emitting circuit (3) and the oscillator crystal (2).
5. A device as claimed in any one of the above claims, characterized in that the temperature sensor (7) is applied to a constant-current source (13) or a constant-voltage source (20) and an evaluation circuit which evaluates the temperature and/or the temperature gradient for compensation of the temperature-dependent resonant frequency of the oscillator crystal (2).

6. A device as claimed in any one of the above claims, characterized in that the resistance/temperature characteristic curve of the temperature sensor (7) is stored in the evaluation circuit.
- 5 7. A device as claimed in claim 5 or 6, characterized in that the evaluation circuit is equipped with a measurement path in which the constant-current source (13) or constant-voltage source (20), the temperature sensor (7) and an analog/digital converter (14) to detect the voltage drop at the temperature sensor (7) are provided, and with an oscillator path in which an oscillator circuit comprising the oscillator crystal (2) with an amplifier (16) and at
10 least one capacitor (17) are provided.
8. A device as claimed in claim 7, characterized in that the measurement path and the oscillator path are separated from each other by filtering means (19, Ck).
- 15 9. A device as claimed in any one of the above claims, characterized by an oscillator circuit in which the oscillator crystal (2) is located and the constant-current source (13) or the constant-voltage source (20) can be applied sequentially, one after the other, to the parallel connection of the oscillator crystal (2), comprising a serial coupling capacitor (Ck) applicable, and the temperature sensor (7) where applicable.
- 20 10. A device as claimed in any one the above claims 5 to 9, characterized in that the capacitance value of at least one capacitor (17) which forms an oscillator circuit with the oscillator crystal (2) can be readjusted by means of the evaluation circuit as a function of the detected temperature or temperature gradient.
- 25 11. A device as claimed in any one the above claims 5 to 9, characterized in that the dividing ratio of an adjustable divider (35) of a phase-locked loop (18) can be adjusted by means of the evaluation circuit as a function of the detected temperature or temperature gradient.